FEBRUARY 1956

FIREMEN

SIXTIETH YEAR · NATIONAL FIRE PROTECTION ASSOCIATION

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re Prevention Week Contest Winners (*See page 10*)

THE HOSE RECORD CARD IS *Bi-Lateral's* BEST *testimonial*

BI-LATERAL *INVITES* COMPARISON!

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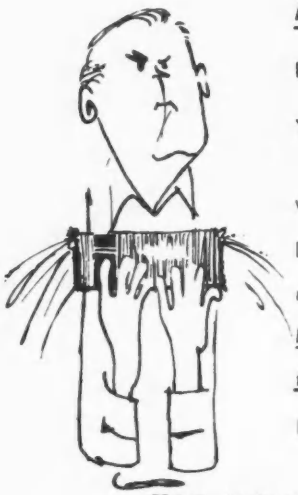

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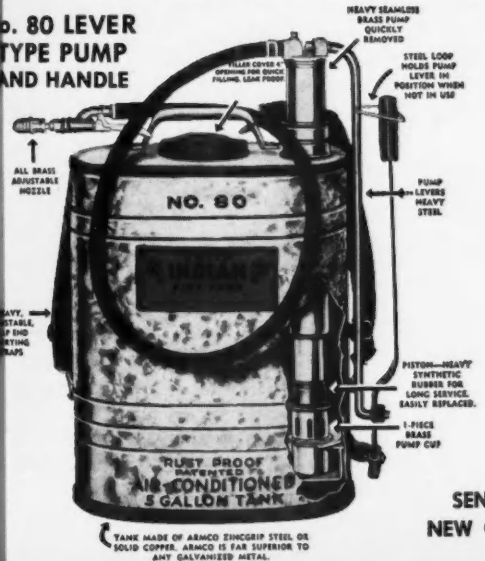
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ALL BRASS ADJUSTABLE NOZZLE
PUMP LEVERS HEAVY STEEL
NO. 80
PISTON—HEAVY SYNTHETIC RUBBER FOR LONG SERVICE. EASILY REPLACED.
1-PIECE BRASS PUMP CUP
RUST PROOF PATENTED AIR CONDITIONED 5 GALLON TANK

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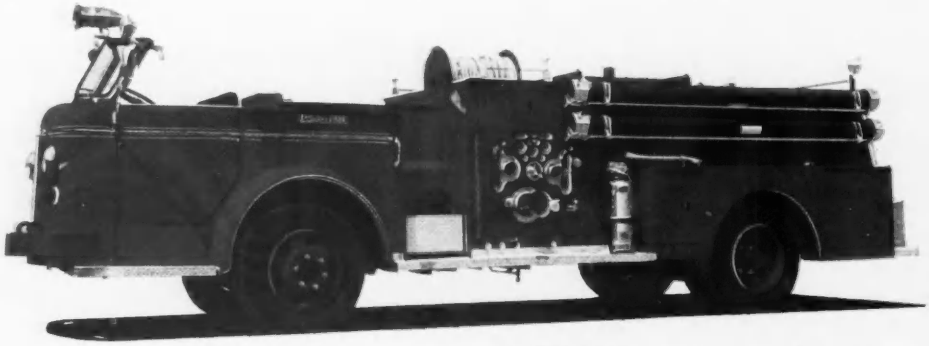

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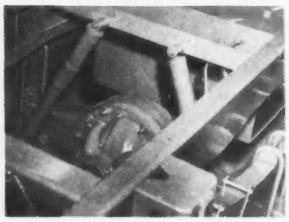

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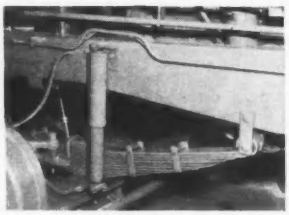

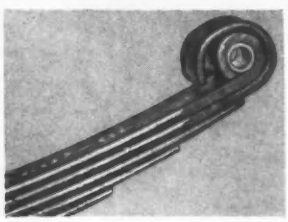

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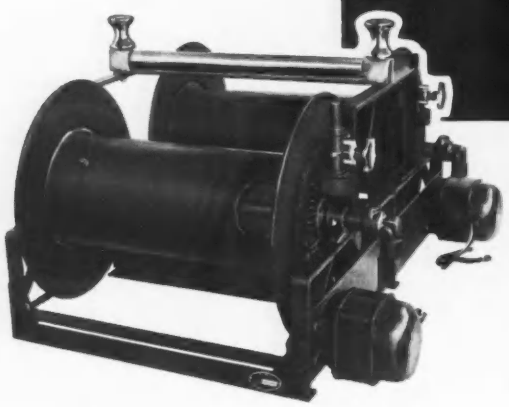

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These trucks pumped water from basements of public buildings, stores, railroad stations and private homes . . . contributing greatly to the restoration of community services.

This is typical of the high performance that Ward LaFrance trucks render every day, one of the many reasons so many communities rely on Ward LaFrance equipment for dependable protection.

PHOTO BY NEW YORK DAILY NEWS

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Firemen

Volume 23 Number 2

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HENRY S. GERE, ADVERTISING MANAGER

Published monthly for the fire service members of the
NATIONAL FIRE PROTECTION ASSOCIATION

A VOLUNTARY NON-PROFIT ORGANIZATION
60 BATTERYMARCH ST., BOSTON 10, MASS.

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Yes or No?

One of the toughest parts of the job of a fire chief, or fire prevention officer, is making decisions of whether certain proposed processes involving storage or handling of flammable liquids, gases, and chemicals are allowable under local laws and ordinances, or conform with good practice standards. Often, it is difficult to give a "yes" or "no" answer immediately. Frequently a person applying for a permit knows this and seeks for a quick decision in his favor.

However, the chief must represent and protect the public interest, as well as the safety of his men, in case fire or explosion may occur. Frequently, it is possible to grant permission for a hazardous process, or operation, and maintain the public safety, provided that certain safeguards are observed. Such safeguards, and minimum essential features necessary for control of fire hazards, are spelled out in the NFPA standards published annually in the 6 volumes of the National Fire Codes. (*Available from NFPA Executive Office — Ed.*)

In most jurisdictions such standards may be used by enforcing officials as evidence of good practice. Fundamental recommendations found in these standards include requirements for automatic fire protection devices (such as sprinkler systems), segregation of hazardous areas and processes, and limitations of the amount and type of hazardous materials that may be subjected to one fire.

Thus, when questions arise about whether permission or approval will be granted, the experienced fire official will avoid snap judgment and will seek detailed facts concerning what is proposed and what effects such installation may have on the fire safety of the plant and community. He will then be able to voice approval or disapproval in an impartial manner based upon knowledge of the fire danger and the means required to control the added hazard.

Once such a policy is recognized as routine, it will be found that local industry will largely "self-police" fire hazards by trying to find out during planning stages what fire protection requirements must be met. In the long run, fire safety of the community will be greatly advanced. Then, if some property owner does seek to maintain a fire hazard, the enforcing fire official will have the support of local business groups in bringing the offender into line.

Remember that if a fire occurs, it will be the fire department that "takes the rap" if it has officially sanctioned the maintenance of a hazard, by granting or approving a permit for some condition that is in violation of nationally recognized good practice standards, and of local legislation which gives the fire department control over fire hazards.

Cover Photo

Good use of aerial and ground ladders and life nets enabled Milwaukee, Wisconsin, fire fighters to rescue 22 of 53 tenants from a fire-involved rooming house in that city on January 15. Four children and two adults died in the fire and 13 others were injured when a fast-spreading fire spread through the three-story, brick rooming house located within a block of City Hall. According to reports, a number of tenants leaped to safety in the life nets, the first use of such equipment in Milwaukee since 1937. Photo at right shows Milwaukee fire fighters removing an elderly woman from the involved structure. (*Cover picture and picture above are Associated Press Wire Photos.*)

NFPA General Manager examines (left) entry of Kentville, Nova Scotia, whose fire department is headed by Chief "Bev" R. Wade. In the past four years Kentville has won the Grand Award for Canadian municipal entries three times. (Right) Entry of Philadelphia, Pennsylvania, which won the Grand Award for United States municipal entries for the second time. Tape recordings and movie films are included on the display board in the background.

There's More to a Contest than "Winning"

Top entries in NFPA Fire Prevention Week Contest win deserved acclaim. A report of the results of the Contest, however, would not be complete without considering the accomplishments of other entries which achieved some measure of success in raising the standards of fire prevention in their communities.

GRAND Awards for the 1955 Fire Prevention Week Contest went to Philadelphia, Pennsylvania, and Kentville, Nova Scotia, for the top entries among municipal fire departments in the United States and Canada respectively. A list of other top winners in various municipalities and in the industrial and government divisions is shown on the opposite page. International publicity and recognition were given to the winning entries in January when the results of the Contest were released to the national press services.

Of the 1,509 entries received, 963 were from municipal fire departments in the United States and Canada, 444 were from various government installations, and 102 were received from industry. Included were entries from Alaska, Korea, and a number of other overseas military installations.

Full appreciation of the Fire Prevention Week Contest, of the careful planning and sincere hard work of fire departments, large and small, can only be obtained by visiting the NFPA Executive Office while the judging is in process and examining the multitude of volumes which are submitted. Each year it becomes more apparent that fire departments throughout North America are becoming more expert in striving for public attention during Fire Prevention Week. In small communities good use is being made of daily and weekly newspapers to call attention to home inspection programs and other Fire Prevention Week activities. Many newspaper clippings submitted as part of the entries contained a small but prominent blank which citizens could fill out and mail to fire stations as an expedient means for having their dwellings inspected by fire fighters.

In larger municipalities, radio and television coverage is becoming more effective. (See story on pages 26 and 27.) In addition, more fire departments are showing professional ability in compiling the information required and presenting it for study by the Contest judges.

The international recognition which will be accorded to the Grand Award winners of this year's Contest is well deserved. Each had a thorough, well-rounded Fire Prevention Week program which undoubtedly will affect the community, industry, or government installation concerned throughout the year. In addition the information was presented in a manner which earned top ratings from the judges.

However, the story of the Contest would not be complete without giving tribute to many of the other fire departments and organizations which utilized parades, demonstrations,

Winners of the 1955 Fire Prevention Week Contest

GRAND AWARDS

Municipal Division (Based on Fire Prevention Week activities)

United States — **Philadelphia, Pennsylvania**

Canada — **Kentville, Nova Scotia**

Industrial Division (Based on year-round fire prevention activities)

Chance Vought Aircraft, Incorporated, Dallas, Texas

Government Division (Based on year-round fire prevention activities)

Anniston Ordnance Depot, Anniston, Alabama — U. S. Army

Carswell Air Force Base, Texas — U. S. Air Force

Naval Station, Seattle, Washington — U. S. Navy

HMC Dockyard, Halifax, Nova Scotia — Department of National Defence, Canada

UNITED STATES RANKING — MUNICIPAL DIVISION

Winning Communities

Class I. (Pop. 500,000 or over)
1. Philadelphia, Pennsylvania
2. Chicago, Illinois
3. San Antonio, Texas

Class II. (Pop. 250,000 to 499,000)
1. Memphis, Tennessee
2. Louisville, Kentucky
3. Miami, Florida

Class III. (Pop. 100,000 to 249,000)
1. Hartford, Connecticut
2. Providence, Rhode Island
3. Nashville, Tennessee

Class IV. (Pop. 50,000 to 99,000)
1. Anderson, Indiana
2. Cedar Rapids, Iowa
3. Evanston, Illinois

Class V. (Pop. 20,000 to 49,000)
1. Tuscaloosa, Alabama
2. Richland, Washington
3. Wausau, Wisconsin

Class VI. (Pop. 5,000 to 19,000)
1. Alexandria, Indiana
2. Martinsville, Virginia and Stevens Point, Wisconsin
3. Killeen, Texas

Class VII. (Pop. under 5,000)
1. Seaford, Delaware
2. Kirbyville, Texas
3. Escalon, California

CANADIAN RANKING — MUNICIPAL DIVISION

Winning Communities

Class A. (Pop. 100,000 and over)
1. Vancouver, British Columbia
2. Calgary, Alberta
3. Edmonton, Alberta

Class B. (Pop. 25,000 to 100,000)
1. Kitchener, Ontario
2. St. Catharines, Ontario
3. Regina, Saskatchewan

Class C. (Pop. 10,000 to 25,000)
1. Noranda, Quebec
2. Arvida, Quebec
3. Alma, Quebec

Class D. (Pop. 5,000 to 10,000)
1. Kentville, Nova Scotia
2. Malartic, Quebec
3. Kapuskasing, Ontario

Class E. (Pop. 2,500 to 5,000)
1. Schumacher, Ontario
2. Vegreville, Alberta
3. Thurso, Quebec

Class F. (Pop. under 2,500)
1. Port Alfred, Quebec
2. Tadanac, British Columbia
3. Digby, Nova Scotia

display material, and newspaper, radio and TV stations to impress upon their communities the need for better fire prevention. Some of these activities are detailed at the end of this story. In addition there is a growing tendency toward using groups of civic and business leaders as "committees" in supporting fire department activities throughout Fire Prevention Week and continuing through the year.

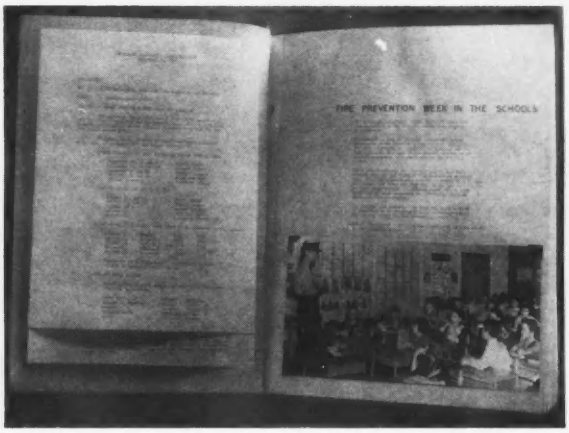
Each of these factors carries weight in the opinion of the Contest judges. Judges this year were: Chief John V. Stapleton, Boston, Massachusetts, Fire Department, representing the International Association of Fire Chiefs; A. Leslie Ham, Manager, Dominion Board of Insurance Underwriters (Montreal); C. M. Gallagher, United States Manager, Atlas Assurance Company, representing the National Board of Fire Underwriters; NFPA President T. Seddon Duke, President, Star Sprinkler Corporation, Philadelphia, Pennsylvania; and Dale K. Auck, Federation of Mutual Fire Insurance Companies, Chicago, Illinois.

As reported in the February, 1955, issue of FIREMEN magazine, features which carry weight in favor of a Contest entry include: *careful organization* of information in the order called for by the Contest entry blank; *believable statements* and proof of their validity in the form of letters, documents, photos, and newspaper clippings; *clarity and brevity* of presentation — making the facts stand out and telling the story simply and forcefully; and *originality* in developing fresh approaches to fire prevention promotion.

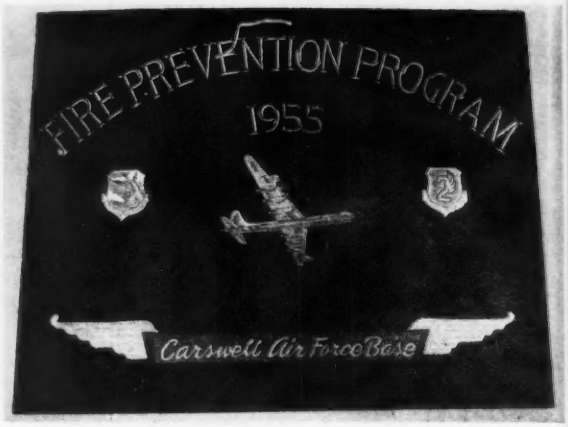
Purpose of the Contest is to encourage fire department use of Fire Prevention Week for motivating the public to constructive action against fire. Each week should feature a "sum-up" of fire department activities of the past year — and new promotion for the coming year-round fire prevention program. Therefore, what counts in any entry is not only the sincerity and completeness of reported activities, but also evidence that these activities will continue to affect the community after Fire Prevention Week has passed.

For judging purposes, a general point total is used through which a perfect entry could score a possible 100 points. On this basis judges consider "Planning for Fire Prevention Week" worth a possible 20 points; "Youth and School Activities," a possible 25 points; "Commerce, Industry, and Civic Cooperation," a possible 20 points; "Publicity," a possible 20 points; and "FPW Inspections and Campaign Results," a possible 15 points. These are the maximum totals that can be obtained for any of the entry blank's sections, and the consensus of the judges' totals brings fair, impartial evaluation of each entry.

Photos of some of the outstanding entries are shown on the following pages. A number of commendable activities are also listed as evidence of the practical methods by which fire departments influence their communities.



Excellent use of children in the community was the highlight of this neat and concise entry from Anchorage, Alaska, which received honorable mention in Class V of U. S. municipalities.



In the Government Division, Carswell Air Force Base, Carswell, Texas, won the Grand Award as the outstanding entry from U. S. Air Force bases.

Fort Washington, Pennsylvania, local newspaper carried ad promoting fire department home inspections and invited reader to tear off stub and send in to request home inspection. . . . *Martinsville, Virginia,* supported neighboring volunteer fire departments with financial and manpower assistance to put on effective Fire Prevention Week campaigns. . . . *Newark, Ohio,* Fire Prevention Week inspection of new school revealed that classrooms were soundproofed and fire alarms could not be heard by students. . . . *Flint, Michigan,* developed a fluorescent red window sticker for placing on windows of children's bedrooms so firemen can make quick rescue in emergencies. (Silver Spring, Maryland, in 1954 and in 1955 promoted "I" cards to identify homes where invalids lived so that quick rescue can be effected).

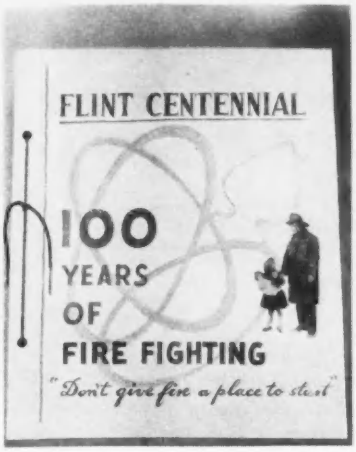
Miami, Florida, in addition to regular Fire Prevention parade on land held another "marine" parade of boats, bathing beauties, officials, etc. . . . *Memphis, Tennessee,* with a "saturation" program and formerly made "Operation Octopus" a regular year-round campaign. (See FIREMEN for September, 1955) . . . *Hammond, Indiana,* local newspaper published fire department invitation to general public to call on department for family instruction in home fire drills. . . . *Tucson, Arizona,* Fire Prevention Week used educational "kick-off" for new home inspection program to continue year-round thereafter. . . . *Portland, Maine,* Fire Prevention Bureau made Sparky hand puppet and used it in all school programs and classroom work. . . . *Anderson, Indiana,* Boy Scouts spent entire day with fire department to live "a day in the life of a fireman."

Providence, Rhode Island, featured "Hadafire Family" in daily skits to show errors which cause fire in the home. . . . *Storm Lake, Iowa,* carried newspaper home inspection applications to be mailed to fire department where family wanted to have home inspected. . . . *Watertown, New York,* service club meetings (Rotary, Lions, etc.) had special drawing at beginning of Fire Prevention Week luncheon. Member whose name was drawn had home inspected by firemen who reported on conditions found at close of meeting.

Fargo, North Dakota, large bell in the center of town, rigged to ring every twenty seconds, had sign: "Fire Prevention Week — every time this bell rings, a fire breaks out somewhere in the United States" (stopped after first day because of disturbance to business offices). . . . *Mount Clemens, Michigan,* urged setting aside one day of FPW and calling it "No Fire Day."

Top winner in the Industrial Division was Chance-Vought Aircraft, Incorporated, of Dallas, Texas. Industrial Division entries are judged on year-round fire prevention activities.

Grand Award winner for the U. S. Navy was this entry from the Naval Station in Seattle, Washington, which topped the 131 entries submitted in that division.



A useful window sticker was developed by Flint, Michigan, fire fighters to expedite rescues in dwellings.

Awarded honorable mention in Class VI of U. S. municipal entries Merced, California, developed a useful manual for its junior fire department, a "Teachers' Guide," and a guide for home fire prevention.

Martinsville, Virginia, supported neighboring volunteer fire departments to carry out effective FP Week campaigns and placed second in U. S. Class VI entries.

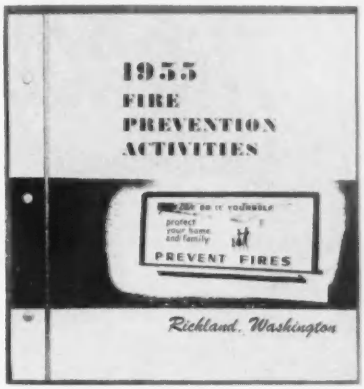
. . . *Wausau, Wisconsin*, featured a live Sparky (fireman dressed up), and baby sitter classes. . . . *Richland, Washington*, initiated four-week baby-sitter course for junior high school girls. Woman's club called everybody in town and asked if fire hazards found by fire department home inspection had been corrected, also if family had been trained on getting out of house in case of fire. . . . *West Milwaukee, Wisconsin*, featured a baby-sitter training course for Girl Scouts and booklet for educators, "School Fire Safety Education" . . . *New Brunswick, New Jersey*, FPW campaign conducted by "Central Committee" representing all communities' interests (similar though smaller than Louisville Fire Prevention Council).

Rocky Mount, North Carolina and *Amarillo, Texas*, man in barrel held up by suspenders paraded streets with sign "I don't believe in fire prevention". . . . *Anchorage, Alaska*, during school fire drills engines arrived with sirens going and bells clanging and fire fighters immediately went into evolutions accompanied by army band. Department also nominated a FPW king and queen from youngsters who were featured speakers during the rest of week at service clubs, on radio and TV.

Muskegon, Michigan, concocted a fire stream extravaganza, with colored lights on hose streams at night. . . . *Ponca City, Oklahoma*, "exchange program" of demonstrations before neighboring communities and invited other fire departments to put on their shows in Ponca City. . . . *Tuscaloosa, Alabama*, built a new house with materials and labor donated then burned it to show cost of fire. . . . *Alexandria, Indiana*, featured a "House of Hazards," big Sparky push.

Winnetka, Illinois, displayed a polyethylene bag of ashes saying "All you have left after a fire," also distributed badge-like ribbons saying "Why not have a family fire safety conference tonight?" . . . *Merced, California*, issued an official manual for the Merced Junior Fire Department and also a "Teacher's Guide" and one on Home Fire Prevention. . . . *Greenfield, Massachusetts*, sent a ladder truck to a hotel. Ladder was extended and fireman distributed FP literature to room occupants on various floors, etc. The Department also had a baby-sitter school.

Cedar Falls, Iowa, baby-sitter courses sponsored by Women's Club, with the names of graduates published in paper. Hundreds registered for the four-class course which featured speakers from fire and police departments, nurses, Red Cross and Child Care agency representatives, and parents. . . . *Killeen, Texas*, Volunteer Fire Department members earned money for all FPW activities (extensive) by parking cars at football games, rodeo, flag renting, issuance of "inactive" membership cards in Department to citizenry.



Second place winner in Class V of U. S. municipal entries was Richland, Washington, which featured a four-week baby-sitter course for high school girls.

The entry from Yokota, Japan, featured this beautiful, hand-painted cover and a mass of material neatly presented.

Commendable baby-sitter courses were sponsored by the Cedar Falls, Iowa, Fire Department in cooperation with various women's organizations.

Placing third in U. S. Class V entries, Wausau, Wisconsin, made good use of a fireman dressed up as "Sparky."

THOROUGHNESS

the essence of pre-fire planning

Part II of a series describing the pre-fire planning program of the Memphis, Tennessee, Fire Department, headed by Chief John C. Klinck. The first article appeared in the January, 1956, issue of FIREMEN magazine.

Typical first alarm assignments prepared as part of the pre-fire planning program.

Second alarm assignments. Copies of these sheets are kept in the communications control car which responds to all multiple alarm fires in the city.

THE preceding issue of FIREMEN magazine described, generally, the pre-fire planning program conducted by the Memphis, Tennessee, Fire Department. Included were descriptions of the basic considerations given to pre-fire planning and the two principal operational plans of the Department on the fireground.

Illustrations on these pages serve to explain the thorough preparation which the department makes for particular industrial installations. These reports pertain to the Southern Cotton Oil Company, located at 1351 Williams Avenue in Memphis. They describe the detailed pre-planned assignments of apparatus and fire companies for multiple alarms at this major industrial installation.

In accordance with the operational plans of the department, the Southern Cotton Oil Company would call for "Plan 2" response of fire companies. (See January issue.) This is because the size of the plant and the hazards involved would require multiple alarm companies to protect exposures and confine the fire.

Note that first and second alarm companies have specific assignments for using hydrants on plant property and on city property. In addition, Engine Company No. 8 is given the task of connecting to the hydrant on Williams Avenue and supplying to the plant siamese connection. Truck companies also have definite positions to take in first alarm response and truck personnel know which engine companies to assist if ladder work is not needed.

Also included in first alarm response is the unit designated as "Fire Patrol 3," which is a special salvage unit used by the Memphis Fire Department and equipped with a deck gun for providing large caliber fog

Typical third and special alarm assignments.

Memphis fire fighters making pre-fire layouts and flow tests for the Southern Cotton Oil Company.

streams. Other fire patrol units respond on second and third alarms to this property.

It will be noted that while first and second alarm companies have definite assignments, "third" and "special" alarm companies responding, generally contact the communications control car for further assignment. (As described in the preceding issue and in the April, 1955, issue of FIREMEN, this communications control car is the "nerve center" for all multiple alarm fires in the city.)

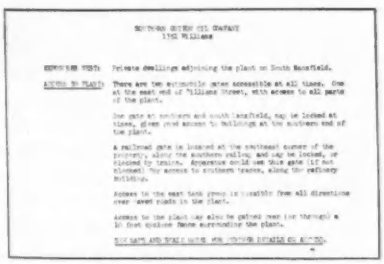
For such multiple alarm response, knowledge of the water supply in the vicinity is of primary importance. A report of flow tests conducted as part of the pre-planning operations appears at lower right. It indicates the residual pressures available at various hydrants when pumpers are supplying the deluge gun, the stream master, or hand lines.

Also important in the analysis of the pre-planning operations is the risk to the exposures and the access to plant property. These are detailed by the inspectors assigned to making a plan of the specific industrial area.

Not of the least importance are the number and capacity of storage tanks on the industrial site, together with descriptions of the contents. A portion of one report on the Southern Cotton Oil Company tank installation is shown at lower left.

A succeeding issue of FIREMEN magazine will describe the actual operations of the Memphis Fire Department during a fire which occurred on this property of the Southern Cotton Oil Company.

Two views of Memphis' "Fire Patrol No. 3," showing deck gun in operation. Top picture was taken during water flow tests at Southern Cotton Oil Company. Bottom picture shows JN-200 nozzle applying fog stream during 2-alarm fire.



SOUTHERN COTTON OIL COMPANY
1155 Williams

EXPOSURE VIEWS: Private dwellings adjoining the plant on South Bonnfield.

ACCESS TO PLANT: There are ten automobile gates accessible at all times. One at the east end of Williams Street, with access to all parts of the plant.

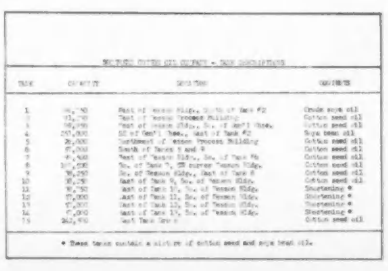
One gate at northern and south Bonnfield, may be locked at times, gives good access to buildings at the northern end of the plant.

A railroad gate is located at the southeast corner of the property, along the southern siding, and may be locked, or blocked by trains. Apparatus could use this gate if not blocked. For access to southern trains, along the refinery buildings.

Access to the east tank group is visible from all directions over level roads in the plant.

Access to the plant may also be gained over (or through) a 10 foot cyclone fence surrounding the plant.

SEE MAPS AND TABLE GIVING TANK CONTENTS DETAILS ON ATTACHED SHEETS.



SOUTHERN COTTON OIL COMPANY - TANK DESCRIPTIONS

TANK	CAPACITY	DESCRIPTION	CONTENTS
1	16,750	East of Texas Ridge, South of Tank #2	Crude cork oil
2	31,750	East of Texas Process Building	Cotton seed oil
3	31,750	East of Texas Ridge, S. of April Shed	Cotton seed oil
4	250,000	50 ft Steel Tank, East of Tank #2	Soya bean oil
5	24,000	Settlement of Texas Process Building	Cotton seed oil
6	47,000	South of Tanks 7 and 8	Cotton seed oil
7	8,400	East of Texas Ridge, So. of Tank #6	Cotton seed oil
8	16,750	So. of Tank 7, 25 across Texas Ridge	Cotton seed oil
9	16,250	So. of Texas Ridge, East of Tank 8	Cotton seed oil
10	31,750	East of Tank 9, So. of Texas Ridge	Cotton seed oil
11	16,750	East of Tank 10, So. of Texas Ridge	Shortening *
12	47,000	East of Tank 11, So. of Texas Ridge	Shortening *
13	47,000	East of Tank 12, So. of Texas Ridge	Shortening *
14	47,000	East of Tank 13, So. of Texas Ridge	Shortening *
15	240,000	East Tank Farm	Cotton seed oil

* These tanks contain a mixture of cotton seed and soya bean oils.

SOUTHERN COTTON OIL COMPANY
TEST HELD JUNE 9, 1955

PUMPER #10 - Located on Williams near disease pumpkin, 10" circulating main, 50 station.

PUMPER #11 - Located on Williams at yard entrance, 6" circulating main.

PUMPER #12 - Located on Williams yard yard, 6" circulating main.

TEST # 1 - Pumper #8 into Deluge - 4 - 500 Ft. lines. 2 1.5" tip - Residual 3# - Veasie pressure 70 - 1260 GPM.

TEST # 2 - Pumper #8, same as Test #1. Pumper #12 - 2 - 100 Ft. lines into Stream Master. Deluge, 2 1.5" tip - Res. 38 - N.P. 90 - 1275 GPM. Stream Master, 1" tip - Res. 25 - N.P. 90 - 690 GPM. Total discharge 1965 GPM.

TEST # 3 - Pumpers #8 and 11, same as Test #2. Pumper #12, test line, 1" tip - Res. 9 N.P. 90 - 420 GPM. Stream Master - 1" tip - Res. 7 N.P. 90 - 690 GPM. Deluge - 2 1.5" tip - Res. 25 - N.P. 90 - 1275 GPM. Total discharge 2385 GPM - TOTAL DISCHARGE of 1" TIP, 1275 GPM.

TEST # 4 - Same lays as Test #3. Deluge, 2 1.5" tip - Res. 15 - N.P. 92 - 1260 GPM. Stream Master, 1 1½" tip - Res. 20 - N.P. 92 - 870 GPM. Hand Line, 1" tip off #12 - Res. 42 - N.P. 90 - 420 GPM. Total discharge 2550 GPM.

TEST # 5 - In yard. Pumper #11 - 4 - 100 Ft. lines into Deluge - 2" tip - Res. 4 - N.P. 90 - 980 GPM.

TEST # 6 - In yard, pumper #11 - same as Test #5. Pumper #8 pumping 4 lines into system. 2" tip - Res. 4 - N.P. 45 - 820 GPM. Increase of 250 GPM IF PUMPING IN

EXPOSURES: All buildings and tanks in the plant expose each other.

EXPOSURE VIEWS: 1 story frame dwellings on the north side of Williams, and the Union Railway Yards, usually containing freight cars and tank cars loaded (empty).

TRAFFIC DETAIL: Expansion of least 200 feet south across the main line tracks of the Southern Railways.

EXPOSURE DATA: Across the tracks of the Union Railway, including small frame buildings, lumber and building materials yard and private dwellings and out buildings.

Typical flow test data compiled in pre-fire planning.

Flammable Liquids Notebook

Miles E. Woodworth, NFPA Flammable Liquids Engineer, describes here some of the principles which fire fighters should consider when evaluating the hazards of flammable liquids storage tanks.

AMONG fire fighters, a common and controversial question is, "How hazardous is the storage of flammable liquids in tanks?"

To answer this question properly, we must first consider the characteristics of the liquid stored, and secondly, if the tank is constructed in *all* details in compliance with requirements of NFPA No. 30-L, "Suggested Ordinance for the Storage, Handling and Use of Flammable Liquids."

The characteristics of the liquid are important, since it is necessary to know if the vapor mixture in the space between the liquid and tank roof will be within the flammable limits (see FIREMEN for August, 1955); or what could happen in the event of spillage of volatile liquid.

Under normal conditions, gasoline has too rich a mixture in a tank's vapor space to be ignited, whereas fuel oil has too lean a mixture. There are a few solvents and certain alcohols which will be normally in the flammable range, and a source of ignition, if present, could cause an explosion. Vapors in gasoline tanks could be within the flammable range during sudden thunderstorms with heavy rain during hot weather, or when the tank is being pumped out. In both these cases there still must be a source of ignition within the vapor space to cause an explosion. (See FIREMEN for June, 1955.) Fire might occur at the vent of a gasoline tank if the vapors coming from the vent are ignited. Fuel oil on the other hand cannot be ignited unless the oil is heated to its flash point. In the United States or similar regions of temperate climate, heat of the sun will not raise the temperature of fuel oil in a tank to flash point even though the vapor space may be considerably above the flash point temperature of fuel oil.

The second feature to be considered in evaluating hazards of flammable liquid tanks is the compliance with all NFPA tank construction features.

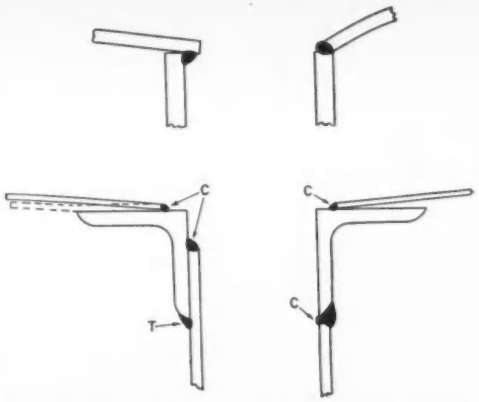
There are several different types of such tanks, the most common of which is the horizontal tank — (also the type most commonly involved in fires). Tanks of this type, which are labeled by Underwriters' Laboratories, will meet requirements of NFPA standards.

Proper construction of storage tanks involves many factors. Fire department members should commonly observe the metal thickness and vent size. "Approval" tests also are observed by some departments. Since a horizontal tank has all of its surface exposed to a possible ground fire, size of the vent is particularly important. For example, a 10,000-gallon tank built for 5 pounds per square inch pressure would be required to have a vent of 3¾ inches of free circular opening. For liquids which are normally within the flammable range, flame arresters are often used. (Combination flame arresters and vent valves are listed by Underwriters' Laboratories.) "Pressure-vacuum" valves are required for Class I and Class II flammable liquid tank vents where flame arresters are not used.

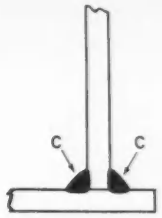
One of the most common violations of the standards, and also one which contributes to serious horizontal tank fires, is the use of tank supports made of unprotected steel. Such supports fail quickly when exposed to fire, permitting the tank to drop and rupture when it hits the ground. Standard requirements for tank supports state that they shall be of concrete or masonry, but "if exposed piling or steel is used it shall be protected by fire-resistive materials to provide a fire resistance of not less than two hours."

There is also frequent violation of the requirement that loading racks shall be 25 feet from tanks. Fire experience has shown that the loading of tank vehicles is a source of fires and when a fire occurs at a loading rack, adjacent to tanks, the fire also is likely to involve the tanks.

Here's a typical 20,000-gallon horizontal tank for fuel oil. North Kingston, Rhode Island, fire fighters were able to knock down a serious ground fire before the unprotected steel supports collapsed. Loading rack, where truck is burning at right, should be at least 25 feet away from storage tank. (See FIREMEN for March, 1953, for a report on this fire.)



"Weakened seams" are used to permit the top of a vertical tank to separate from the tank shell before the bottom joints fail. Shown above are the types of welding recommended by Underwriters' Laboratories, Inc., for vertical tank tops and top joints. Black spots indicate welded seam. "C" means continuous weld, while "T" means tack welding of 1-in. spots, not over 12 inches apart.

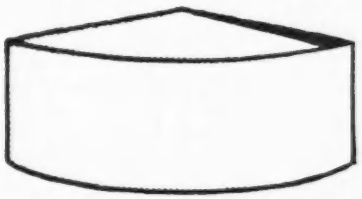


Bottom weld, recommended by Underwriters' Laboratories for vertical tanks, has greater strength than welds for weakened seams.

Large vertical aboveground tanks normally are constructed at the point of use. Such tanks are built in accordance with the standards of the American Petroleum Institute. Smaller tanks are frequently built in shops, labeled by the Underwriters' Laboratories, and transported to the point of use. Fires in vertical tanks are relatively infrequent if they are properly maintained, particularly if the roofs are in good condition, free of holes. The most common of vertical tanks is the cone roofed tank. Several other types for storing flammable liquids are grouped under the general category of "conservation type tanks." This category includes tanks with floating roofs or lifter roofs, vaporspheres, vapor-tanks, spheroids and hemispheroids. Except for floating roof tanks, venting for such vertical tanks is also of principal concern to the fire services, since, if a ground fire occurs near the tank, it is important for fire fighters to know that the tank will not rupture because of lack of venting capacity.

The danger of fire in a tank with a fixed roof is due primarily to the existence of a vapor space. Floating roof tanks reduce the fire hazard to a minimum by eliminating the conditions that permit a fire to occur. The liquid under the roof cannot become ignited as the floating roof rides directly on the liquid, thus eliminating the presence of oxygen, which supports combustion. Fires do occur sometimes at the seal between the roof and the shell of the tank but are easily extinguished. Class I and Class II flammable liquids often are stored in floating roof tanks.

The cone roof type of tank, if very large, will not stand much pressure. A typical tank of 50,000-gallon capacity would require, for normal and emergency functioning, a vent having $12\frac{3}{4}$ inches of free circular opening. However, a tank may have a vent of sufficient size to take care of normal breathing. It may also have a weakened seam roof for the emergency venting, since such roofs are recommended for tanks under 36 feet in diameter. Tanks larger than this size will automatically have a weakened seam roof.

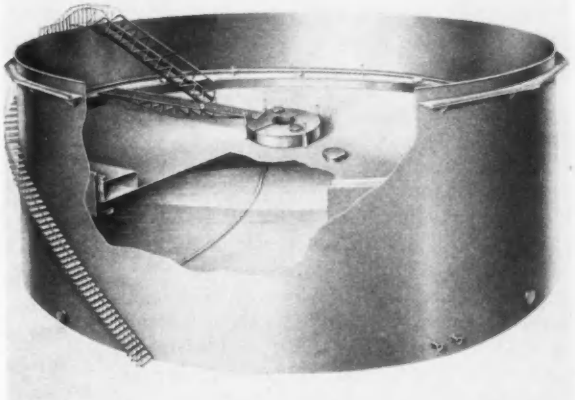


Cone roof tanks are shaped like this and may be found on many properties where flammable liquids are stored.

Protection is provided by a weakened seam roof because, in the event of an internal explosion, the roof will be blown from the tank. Otherwise the entire tank could leave its base and skyrocket through the air. (Four firemen were killed while fighting one tank fire when the tank exploded into the air and the entire contents of the tank were released. The resulting wave of burning liquid engulfed the four firemen. Several other tanks have similarly skyrocketed for lack of weakened seam roofs, but with less tragic results.)

All tanks for the storage of flammable liquids should be constructed of steel unless the liquid being stored is incompatible with steel. One tank explosion killed ten firemen because the liquid was incompatible with the aluminum tank in which it was stored thereby causing an uncontrolled chemical reaction.

All valves connected to flammable liquid tanks should be of steel unless the steel is incompatible with the liquid being handled. Either internal or external control valves located as close as practicable to the shell of the tank are required.



Cutaway view of a typical floating roof tank. Roof, supported by pontoon, floats on top of liquid in tank, thus eliminating vapor space in which ignition could occur.

Non-Military Defense Problems

By NFPA General Manager Percy Bugbee

IN MAY of 1951, a comprehensive study of the non-military measures for the defense of the United States against enemy attack was undertaken under the sponsorship of the Associated Universities (nine eastern technical universities and colleges) at the request of the Department of Defense, the Office of Defense Mobilization, and the Federal Civil Defense Administration.

A group of about 75 people representing all different interests and experience participated. The fire protection interests were represented by Percy Bugbee, General Manager of the National Fire Protection Association, and Horatio Bond, Chief Engineer of the NFPA. This study was known as Project East River and a comprehensive report of 11 volumes, embracing some 900 pages, was made to the government agencies in December of 1952. Part of it was classified.

Points of departure from this report were that the country was in for a long period of cold war and international tension, that there would be a rapid development of new weapons, that there was no atomic bomb monopoly, and that in any subsequent enemy action the entire country could be exposed to attack The committee also felt at the outset that the policies for civil defense were inadequate at that time.

Major recommendations of Project East River were for a comprehensive warning system to be developed by the Defense Department, measures for the reduction of the vulnerability of our major cities to attack, and a permanent civil defense plan. The principal fire recommendations in Project East River had to do with more effective dispersal of industry and populations, more effective use of open space in our target areas, measures needed to reduce combustible material in our cities, measures for improved protection of buildings through fire-resistive construction and automatic sprinklers, the creation of a fire warden service in times of emergency, and plans for local water storage under emergency conditions. In that report we also strongly urged dependence on existing disaster agencies for civil defense activity, these being the fire, police, health and public works departments of our cities.

In May of 1955 a group of 14 of the original 75 members of Project East River were again asked, by the three government agencies concerned in the first survey, to review the previous findings, assay progress, and suggest further steps for non-military defense at this time. Both Mr. Bugbee and Mr. Bond served on the Review Committee. The findings of the committee were released to the press by FCDA in January.

The group found that there had been a rapid development in destructive weapons and that atomic bombs were now rated in millions of tons of TNT in destructive power, enormously complicating the non-military defense problem. The committee also pointed out that the fall out of radioactive material from the new types of bombs would cover thousands of square miles in area and endanger many hundreds of thousands of people, creating a new and extremely difficult problem. The committee also pointed out that the intercontinental ballistic missile would become a reality in a short span of years and would again reduce the warning time to civilian populations to a few minutes. Improvement in the continental air defense as a result of the East River recommendations has provided substantially increased warning time in the interim period before the advent of intercontinental ballistic missiles.

The committee found a continued almost complete lack of coordination in civilian defense planning by Federal, State and local governments and found that the general public was more confused than ever because of lack of a clear understanding of the problem and lack of leadership from government.

The committee also found that present-day civil defense had become a large area problem, and possibly a long-range problem, involving a considerable period of cold war which would indicate a long range planning program for defense. The committee found disappointingly small progress in ways and means of dispersing essential industries and in reducing urban vulnerability to attack, and was of the opinion that the present Federal Civil Defense Administration did not have sufficient stature, prestige and acceptance by Congress or by the general public.

PRINCIPAL recommendations of the Review Committee were to attack the over-all problem on a new basis through the setting up of metropolitan target zone areas and plans for defense based on the physical conditions, populations and characteristics of each individual area. Civil defense planning on this basis would involve the cooperation of numerous municipalities, various states, and the Federal Government, and the committee recommended that frequent revisions of the plans for each target zone area should be instituted. The committee again pointed out that the success of local civil defense activity depended upon existing municipal disaster services, such as municipal fire departments, and that these should be the basis for local planning, supplemented by such help as the armed forces in the area could give through their existing disaster plans and their mobile support forces.

The committee again urged a strong Federal program to reduce the vulnerability of these metropolitan target zone areas by improved plans for spacing and dispersing, and by improved programs for construction and protection of buildings and elimination of fire hazards in the areas.

The committee felt that if civil defense were to have any substantial public support, the Federal Civil Defense Administration should be provided an increased

status in the government and recommended that the President take steps to improve the organizational framework of this operation.

Finally, the committee made a strong plea for a better public information and education program so that all citizens could be given a clear understanding of their individual responsibilities and functions in the event of atomic attack.

The committee feels that every citizen of the United States would gladly support and participate in a Civil Defense program if they were given an opportunity to clearly understand what was expected of them. It recommended that the President announce to the country in a nation-wide television program the purpose and meaning of the Civil Defense program and participation of citizens in it. The committee pointed out that one of the reasons for the failure of the Civil Defense program has been the fact that FCDA has not received, from the military establishment, adequate information on weapons technology and changes in the international situation which seriously affect the Civil Defense program. It recommended that such information be given to the Civil Defense Agency promptly and regularly by the Department of Defense, the Atomic Energy Commission, and the National Security Council.

New Supervisor at Iowa State College

KEITH ROYER has been appointed Supervisor of Firemanship Training in the Engineering Extension courses at Iowa State College. He succeeds the late Mark Brosier (see September, 1955, FIREMEN), under whom he served as Chief Instructor for four years.

Keith is well known to the fire service of that State and has participated in the Fire Department Instructors' Conference in Memphis, Tennessee, and in meetings of the NFPA Committee on Firemen's Training. Prior to joining the Iowa State College staff in 1951, he had served with the Newton and Wichita, Kansas, Fire Departments.

He will be assisted in the Firemanship Training by Floyd (Bill) Nelson, former Assistant Chief of the Atlantic, Iowa, Fire Department, and William R. Simpson, formerly of the Centreville, Iowa, and Stillwater, Oklahoma, Fire Departments.

Cost Record Book

FIRE chiefs and master mechanics may be interested in the "Cost Record Book" recently published by the White Motor Company. It contains charts in which maintenance, use and depreciation costs of vehicles may be tabulated uniformly. Such tables may be adaptable for recording costs of fire apparatus operation and maintenance.

Complimentary copies may be obtained by interested fire departments who write to Mr. T. J. Delaney, The White Motor Company, Cleveland 1, Ohio. Be sure to ask for the "Cost Record Book" mentioned in FIREMEN.

Administration Course at Boston University

A LECTURE course on Fire Administration for fire officers will be held at the College of Business Administration, Boston University, Commonwealth Avenue, Boston, Massachusetts, beginning March 15. Designed as a preliminary to the full semester courses scheduled for the Fall, it will feature eight lectures of 2-hour duration in the evenings. Subjects tentatively scheduled include: Introduction to Fire Department Administration; The Fire Department as a Business Organization; Municipal Fire Administration; Legal Aspects of Fire Protection; General Fire Prevention; Public Relations for the Fire Service; Fire Service Communications; and Public Service as a Profession.

Fire officers interested in attending may write to Dr. Lashley G. Harvey, c/o Boston University at the above address. Cost of the 8-lecture course will be $15.

Korean Chief Visiting U.S.

A RECENT visitor to the NFPA Executive Office was Chief Bong Sul Lee of Taegu, Korea. Chief Lee commands all paid and volunteer fire departments in South Korea and has headquarters in Seoul. In that Republic the fire and police departments are combined as a national organization.

Chief Lee visited with the Boston Fire Department and will be travelling through the United States for the next few months. Some of the fire departments scheduled on his itinerary are Washington, D. C., Baltimore, Maryland, Chicago, Illinois, San Francisco and Los Angeles, California, and Miami, Florida.

Film List Available

A LIST of films which are produced by members of the Los Angeles, California, Fire Department is now available. It describes the subjects and running time of basic, advanced and special fire training films, and some for public education, which fire departments may purchase None of the films is available on loan or rental basis, but the free list and further information may be obtained from: Cinesound Company, 1037 N. La Brea Avenue, Hollywood 38, California.

6 WAYS TO GUARD YOUR HEART

1. AVOID SELF-DIAGNOSIS
In case of doubt see your doctor.

2. AVOID WORRY
Worrying cures or prevents nothing.

3. AVOID OVER-FATIGUE
When you rest or sleep, your heart's work load is lightened.

4. AVOID OVER-EXERTION
Exercise in moderation, particularly if over 40.

5. AVOID OVER-WEIGHT
Excess weight loads extra work on your heart.

6. SUPPORT YOUR HEART FUND
Your contribution advances the nation-wide fight against the heart diseases through research, education and community heart programs.

HELP YOUR HEART FUND — HELP YOUR HEART

Dr. Irwin replies to Dr. Wm. Claudy's "open letter" on

"Practical First Aid"

I WANT to express my appreciation to Dr. Claudy for the constructive suggestions offered in his recent article. (*December, 1955,* FIREMEN — *Ed.*) He presents a number of interesting points in regard to the practicality of so-called first aid. I agree fully with Dr. Claudy that the subject needs to be reviewed and re-evaluated. Obviously, I do not agree with Dr. Claudy concerning certain phases of this important work. I certainly feel that the most important factor is a realization that first aid is not treatment. In these days of excellent transportation facilities, good communication, and well-equipped hospitals, there is rarely need for elaborate "in-the-field" medical work. Naturally, I have no objection to a longer period of instruction, and certainly no objection to practical application of proper first aid principles. However, the basic principles can be learned in a relatively short time.

I feel that specific points in the article by Dr. Claudy deserve further discussion. He points out that clothing often needs to be removed for treatment. This is quite true as applied to treatment, but not for first aid purposes. An adequate search for concealed injury, to use Dr. Claudy's description, cannot and should not be made at the scene of the accident. A bleeding wound, on the other hand, must be exposed for proper first aid care. Dr. Claudy states that I mentioned four items of first aid material used in the treatment of a single injury. I have reviewed my article in detail and cannot find such items mentioned.

I do not object to the use of a universal poison antidote, but again I feel that this falls in the category of treatment rather than first aid. I do object to the use of Hydrogen Peroxide in the first aid cleansing of wounds. I also object to the so-called antibiotic ointments because of the known sensitivity of some patients to these drugs. I object to the use of vaseline gauze over burns of any magnitude, except on the specific direction of the physician who is going to continue the treatment of such burns. Many physicians now feel that the use of vaseline or other oily dressings is directly contraindicated. I have no objection to the use of aromatic spirits of ammonia, but feel that it has no particular effect other than psychological. Treatment of bee stings would seem to fall in the category of home nursing, rather than first aid.

Dr. Claudy mentioned a previous article of mine in which I stated that even a small department cannot afford to be without the basic items of first aid. That is quite true. All that is required is an inexpensive kit containing the few articles mentioned in my article on first aid. I certainly agree with Dr. Claudy that the use of a dressing for the relief of skin pain is important. He will notice that I advised using a dressing on wounds. I am glad to see that Dr. Claudy agrees that direct pressure will control most cases of bleeding. Rarely, if ever, is the use of a tourniquet indicated.

The use of traction in fracture work can in no way be considered a first aid procedure. The reduction of fractures is not something to be done haphazardly, and early manipulation before the patient is seen by a physician can only lead to harm.

Dr. Claudy is quite correct in his statement that carbon monoxide asphyxia is the result of loss of the oxygen-carrying power of the blood. However, surely he will agree that this is important principally because the breathing center of the brain is affected. I have made no attempt to present a technical discussion of this subject because of its lack of first aid significance. I do not agree with Dr. Claudy that a smoke or gas inhalation patient is best treated while lying on his back. Again I think the essential thing is the differentiation between treatment and first aid. I am glad to see that Dr. Claudy agrees that sucking wounds of the chest should be covered with bandage as advised for all types of wounds. I am particularly pleased to note that Dr. Claudy agrees that only anesthetists are qualified by training to meet asphyxial problems. This, of course, points out the necessity of getting the patient to a well-staffed hospital rather than attempting elaborate procedures in the field. I agree with Dr. Claudy that various methods of artificial respiration are effective, and would certainly have no objection to any of the approved methods.

Obviously, a patient with an injury to the neck will require support for his head.

I do object to Dr. Claudy's paragraph concerning care of an accident patient in hospital "waiting rooms." Perhaps it is neither callousness nor lack of knowledge on the part of the hospital personnel, but rather a realization that overly-vigorous treatment can cause additional harm. Certainly few non-medical persons are qualified to evaluate the so-called "basic precepts" of treatment. I agree with Dr. Claudy that only through free criticism and discussion can such problems be clarified.

DR. CARL W. IRWIN, *Surgeon*
Association of Fire Chiefs of Maine
Bangor, Maine

Next Arson Seminar

THE Twelfth Annual International Arson Investigators' Seminar will be held at Purdue University, Lafayette, Indiana, April 23–27. Meetings will be in the Memorial Union Building on the university campus. Members of municipal and industrial fire departments, and representatives of law enforcement, municipal, state, and national governmental agencies, insurance and underwriting organizations, fire prevention representatives, and persons actively engaged in arson control and prevention are invited to attend.

Further details on the Seminar will be published in a forthcoming issue of FIREMEN magazine. For additional information on the program and room reservations, write to: Professor Shelby Gallien, Seminar Director, Public Safety Institute, Purdue University, Lafayette, Indiana.

Toronto Chiefs' Meeting

THE Annual Toronto Fire Chiefs' Conference is scheduled to be held at the University of Toronto, Toronto, Ontario, April 25–27. The Ontario Fire Chiefs' Conference will be held at the same site April 26. Municipal and industrial fire chiefs of Canada are invited to attend. Both meetings will be held in the Debates Room of Hart House on the University Campus. For further information write to Fire Marshal W. J. Scott, Office of the Fire Marshal, 210 Huron Street, Toronto, Ontario, Canada.

New Director in Kansas

NEW Director of the Kansas State Fire School is Clyde A. Babb who was appointed during 1955. He has been associated with the firemanship training program of that State since 1949 when he first joined the staff of the University Extension. He graduated from the University of Kansas in 1928 with a Bachelor of Science Degree in Education. After eleven years of operating a private business, he entered the military service in 1940 and was separated as a Lieutenant Colonel in 1947. Readers of FIREMEN interested in participating in the Kansas firemanship training program should write to Mr. Babb, c/o University of Kansas Extension Classes and Centers, Lawrence, Kansas.

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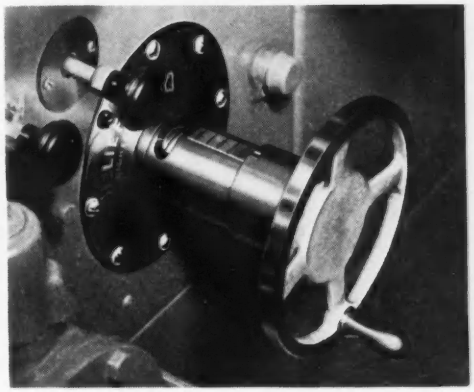


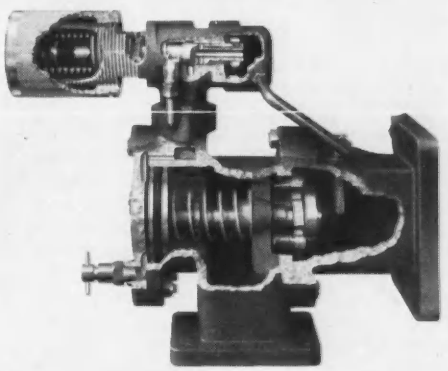
This new Hale Relief Valve Control with handy "Setting" Wheel shown at left is now available for all Hale single, two and three-stage Centrifugal Pumps that use a Hale Relief Valve, *regardless of age.* The Wheel Control is now standard on *all present* Hale centrifugal fire engine pumps, and can be easily mounted on all older single, two and three-stage Hale centrifugals in service. It can be mounted directly over the Relief Valve, or Panel-mounted as pictured at left, to replace the older style knurled Control shown under the arrow below. The new Control made an instant hit with all who saw and handled it at the International Fire Chiefs Convention at Omaha. Price of a replacement kit, including instructions on how to make the change, will be gladly furnished on request.

This opportunity to modernize your Relief Valve is another example of constant research resulting in constant improvements.

Dotted line points to older type knurled Control knob on Relief Valve Control which the modern "QL" control and Setting Wheel replace.

Cost of change-over kit is reasonable and change-over can be easily made.

NOTE:
We suggest that, after you have examined the Kit Information, you place your order through the original manufacturer of your apparatus.



To HALE FIRE PUMP CO. — Please send us the information on how to change over our present Relief Valve Control to the modern "QL" Control.

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Fire Services & Civil Defense

Dosimeters, radiation monitoring and medical records for the fire services are mentioned in this report which describes the results of a recent meeting of the Fire Advisory Committee of the U. S. Federal Civil Defense Administration.

A STATE fire program is expected to consider measures by which each fireman in the state may be provided with a pocket dosimeter to record the man's exposure to possible nuclear radiation when working under wartime conditions. Fire departments which keep medical records on personnel would be expected to record these exposures in each man's medical record. For other departments, a statewide system of medical records for this wartime necessity are envisioned.

This was one topic on which recommendations were formulated by the Fire Advisory Committee of the U. S. Federal Civil Defense Administration which met at Battle Creek, Michigan, in December, 1955. The recommendations, which were invited by the FCDA Fire Office, were offered to the Administration as a guide to policy and practice. They also covered fire research, recruitment of firemen, firemen's training and improved contacts between Federal and State fire offices concerned with wartime problems.

The following members of the FCDA Fire Office staff participated in the meeting:

Chief Lloyd Layman, Director of the Fire Office; Kyle P. Laughlin and Battalion Chief Frank P. McNea. Committee members present were: E. C. Iverson, State Fire Marshal of Nebraska; Henry G. Thomas, Chief of Fire Department, Hartford, Connecticut; Horatio Bond, Chief Engineer, National Fire Protection Association, Boston, Massachusetts; John Neale, Chief Engineer, National Board of Fire Underwriters, New York, New York; Fred Shepperd, Editor, *Fire Engineering* Magazine, New York, New York; and R. E. Vernor, Manager, Fire Prevention Department, Western Actuarial Bureau, Chicago, Illinois. The Committee includes two others who were unable to attend this meeting: George J. Richardson, Secretary, International Association of Fire Fighters, Washington, D. C., and John Alderson, former Chief of Fire Department, Los Angeles, California. The Committee was welcomed by Gerald R. Gallagher, in charge of Technical Advisory Services of FCDA.

The Committee took formal action on a number of topics as reported separately in paragraphs following, but devoted much of a two-day meeting to hearing from various people on the FCDA staff. Mr. Laughlin reported on certain features of the thermal test program carried out during weapons tests in Nevada last spring. A number of current and projected publications of FCDA on fire subjects were discussed and suggestions left with the staff.

NFPA No. 801

Recommended Safe Practice for

Laboratories Handling Radioactive Materials

48 pages, 1955, 50 cents

Write to:

NFPA Publications Department

60 Batterymarch Street, Boston 10, Massachusetts

Radiation Monitoring

Mr. Laughlin presented information available on the radiation fall-out problem. Jack Green, of FCDA's technical staff, exhibited and demonstrated instruments for radiation monitoring. He indicated that these instruments had now reached a stage of standardization such that they could be purchased by individuals, by fire departments and civil defense agencies, with assurance that they would not soon be outdated.

The kind of instruments used for detecting and recording personnel exposure and other monitoring have been described in NFPA No. 801 — "Recommended Safe Practice for Laboratories Handling Radioactive Materials" (48 pages, 1955, 50 cents), published by the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts; also in a pamphlet, Radiation and Monitoring Fundamentals for the Fire Service (52 pages, 1955 revision, $1.00), published by International Association of Fire Chiefs, Martinique Hotel, New York 1, New York. Information on the particular models exhibited to the Committee will probably be announced by the respective manufacturers and issued to civil defense agencies. The Committee recognized that the problem of radiological contamination was a new one for fire departments and recommended the following:

"Fire departments which keep medical records on personnel should provide (1) that these records include radiation dosages received by the individual firemen and (2) that the fire agency in each state provide medical records on other firemen for the same purpose. The state fire program should consider measures by which each fireman in the state may be provided with a pocket dosimeter."

Fire Research

Chief Layman reported that a Fire Research Conference had been established at the request of FCDA in the National Research Council, to handle a contract with FCDA for fundamental research on the nature of combustion and fire extinguishment. The Committee approved this fire research program as being the appropriate response by the federal government to a request by the International Association of Fire Chiefs for government help in connection with wartime fire fighting problems.

Improved Federal-State Contacts

Mr. Gallagher asked the Committee for a recommendation leading to a solution of command and control problems of fire departments in dealing with large fire fighting forces under nuclear attacks. With respect to this the Committee adopted the following recommendation:

"The staff of the Fire Office should arrange periodical conferences between it and the state fire officials who have been assigned by their respective states, for the purpose of improving the channel of communication between the Fire Office and the persons charged with fire responsibilities in the respective states, in order (1) that the Fire Office staff can transmit information of FCDA policy and (2) that the state fire officials can furnish the FCDA Fire Office staff with information on progress in their respective states. The command of fire operations should be worked out in each state and a training program in command and control should be developed in these conferences."

Firemen's Training

The Committee restated a principle:

"No new agencies for training of firemen should be established, but this work should be carried on by the regular firemen-training agencies provided by large municipal fire departments and by state firemen's training programs."

Recruitment of Firemen

Attention was called by the Committee to the danger of haphazard recruitment of auxiliary firemen through the following statement:

"The undermanning of some municipal fire departments should be recognized and these should be brought up to strength in accordance with recognized standards. Additional firemen should be recruited for fire departments to serve only under the regular rules and regulations of the department and additional manpower available for fire fighting purposes should be organized in private fire brigades at industrial plants, institutions and other large buildings throughout the city."

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Important principles governing effective fireground action are thoroughly explained in these four books. "Attacking and Extinguishing Interior Fires" and "Fire Fighting Tactics," (both by Lloyd Layman, former chief of the Parkersburg, West Virginia, Fire Department), present case histories and explanations of the effective use of water fog in fire fighting, and suggest operational planning procedures and tactics. "Operating Fire Department Pumpers" is important to every fire officer. It is especially useful for training pumper operators and contains new data on pumper relays and hydraulic formulae. "Handling Hose and Ladders" is the new cloth bound edition of the pictorial training manual, with an added section on handling pompier ladders.

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TRAGEDY COMES TO LEXINGTON. This tank truck jackknifed, tipped over on its side and traveled about 100 feet in that position. Sparks showered up from beneath the truck and it blew up. The driver was killed.

Rockwood FOAM puts out tank truck fire in minutes!

Here is the true story from the pages of the Boston Globe and eye-witnesses

It was Thursday, March 17, 1955, 9:30 a.m. A tank truck was stopping at a traffic light on the Concord Turnpike in Lexington, Massachusetts. Suddenly, it jackknifed. There was a puff of smoke, then an explosion. The driver was hurled onto the roadway. His clothes were aflame and he collapsed. Onlookers said flames reached 200 feet in the air.

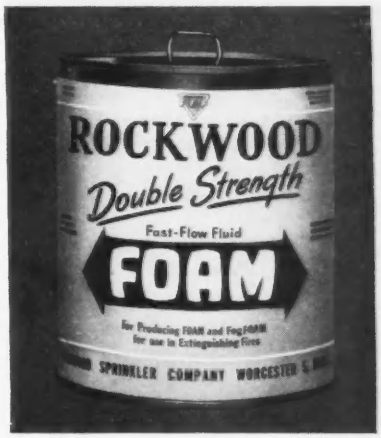
Minutes later, in answer to a telephone alarm, Engine 2 of the East Lexington Station was on the scene. Flames whipped by winds and fed by several thousand gallons of gasoline were sweeping across the road and scorching the surrounding trees. Black smoke billowed into the air.

Roy A. Cook, Chief Engineer, Lexington Fire Department, ordered Engine 2, which carries 500 gallons of water, to hold back the flames until Engine 1, carrying Rockwood FOAM, could be put into action. .

Soon Engine 1, equipped with a 1½" Rockwood FOAM eductor plus the new type SG-60 FOAM nozzle with adapter for straight stream and FogFOAM, was at the scene. *With this Rockwood equipment and FOAM, Engine 1 had the fire completely under control in fifteen minutes; completely extinguished in forty-five minutes.*

Does your city have this protection? With ever-increasing traffic, more filling stations and more tank trucks on the road, the frequency of gasoline fires is on the increase. When tragedy came to Lexington, headlines told a grim story. But a major catastrophe was prevented because the Lexington Fire Department was prepared with Rockwood products. Every Lexington Fire Department Truck is equipped with Rockwood FOAM.

Be prepared. Put this great fire fighter to work for you. Specify Rockwood Automatic FOAM Proportioning Systems, Rockwood FogFOAM nozzles and FOAM liquid when you order a fire truck.



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Boosting Fire Prevention with Television

FIRE departments in Massachusetts last Fall received the powerful support of television during Fire Prevention Week. Station WBZ-TV of Boston conducted a special public service contest to focus attention of citizens in New England cities and towns on the need for better fire prevention. As a result, five Massachusetts fire departments received new "Pneolators," awarded because of the response of their communities to the campaign.

WBZ-TV has actively supported fire prevention for some time. It is the only station to have won for three consecutive years the "Gold Medal" award formerly presented by the National Board of Fire Underwriters to the television station in the United States which contributed most to the cause of fire prevention. Using the $500 award received last year, the station purchased five "Pneolators" from the Mine Safety Appliances Company.

Beginning September 30 and extending through the final day of Fire Prevention Week, the station made both audio and video presentation of the following pledge on several programs:

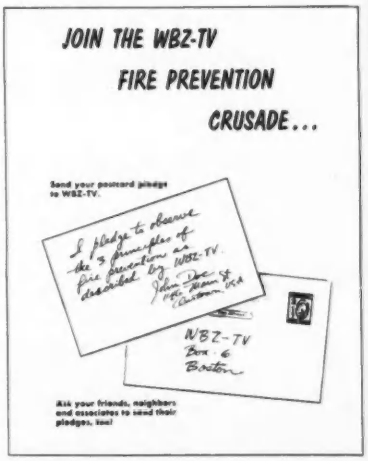
"To help reduce the loss of life and property by fire, I pledge: (1) To make sure all matches and cigarettes are put out before I discard them; (2) To look for and repair any fault in my stove, furnace, fireplace, and heating pipes; (3) To make sure all electric wires, sockets, fuses, and fixtures in my home, office, or shop are in good condition and are used properly."

The station asked that listeners write the pledges on two-cent post cards and mail them to WBZ-TV. Each card was to contain the written statement "I pledge to observe the three principles of fire prevention described on WBZ-TV" with the signer's name and address. Awards were given to the fire departments in New England cities and towns which submitted the highest percentage of pledges per population. Within nineteen days the station received more than 50,000 pledges.

The five winning fire departments were all in towns of less than 80,000 population. Leading community was Holbrook, which subscribed close to 100 percent of its population. The high vote was attributed to house-to-house calls by fire department members and to the support given by Holbrook churchmen. In second place was Whitman with 60 percent of its population sending in pledges. Avon was third with close to 50 percent of population subscribing; Chelsea with 12,500 ballots (the highest single total) with better than 32 percent of its population participating; and in fifth place was Bedford with more than one out of four of its population sending in pledges.

Each of these communities received their "Pneolators" and Chelsea fire fighters were the first to use the equipment for saving a thirteen-month-old child who had a severe chest congestion.

Comments of the chiefs of the winning fire departments provide a means of evaluating the effectiveness of the campaign. Chief Clifton L. Baker, Jr. of the Holbrook Fire Department felt that the television broadcasts provided excellent support for his Fire Prevention Week activities. He also stated that the effect of the contest upon the townspeople extended well into December, when he was elected "man of the month" at a Rotary Club meeting in his community.


JOIN THE WBZ-TV
FIRE PREVENTION
CRUSADE...
Send your postcard pledge to WBZ-TV.
I pledge to observe the 3 principles of fire prevention as described by WBZ-TV.
WBZ-TV
Box 6
Boston
Ask your friends, neighbors and associates to send their pledges, too!

This 4-page brochure described the contest rules and was distributed by fire departments in various communities, and by the television station.

Chief Lawrence W. Phillips of Whitman stated that while their Fire Prevention Week program was directed primarily to school children, there was evidence that the whole community reacted to the television broadcasts, and that there was a noticeable increase in attention given to fire hazards as reported by individual citizens in the town.

Chief Charles G. Voke of Chelsea felt that the program improved the public relations program of his fire department. Fire fighters erected a large display in the center of town which duplicated the pledges. Civic organizations provided the funds for the post cards, and fire fighters distributed some of these cards to motorists on the main streets. The department has used its "Pneolator" twice since winning the award. Chief Voke also received a letter of commendation from the Board of Aldermen and the Mayor of Chelsea.

Chief Elmer A. Swanson of Avon also spoke well of the campaign. The chairman of the Board of

Members of the winning fire departments shown with representatives of the Bay State Club of Boston, who counted and tabulated the pledges received from the various communities.

Selectmen in that community was instrumental in bringing support of the schools and civic clubs to the fire department's activities.

Chief Richard S. Dodge of Bedford pointed out that his "call" fire department received exceptional support from women's organizations in the town. A Mrs. Lawrence Kimball coordinated the efforts of these clubs in the fire prevention campaign.

All of the winning fire departments attributed some measure of their success to various school committees, civic groups, and officials who urged communities to support the campaign. Throughout New England many state and city government officials, including Massachusetts' Governor Christian A. Herter and Boston's Mayor John B. Hynes, fire officials, insurance associations, veterans' groups and other organizations also added their support.

British Manual of Firemanship — Water Supplies

THE Manual of Firemanship, Part 3, Water Supplies, issued under the authority of the British Home Office Fire Service Department, has been revised, 1955. Although the manual stresses British fire department and public water supply practice, there is much of general usefulness and interest to fire department personnel everywhere, particularly sections dealing with emergency water supplies and water relaying. The book is 72 pages and may be obtained from Her Majesty's Stationery Office, P. O. Box 569, London, S.E. 1, for 4 shillings, 3 pence, postpaid. Copies may be purchased in the United States from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y., for 77 cents.

Dates to Remember

Nebraska: The 19th annual State Fire School will be held in Grand Island, April 15–17, at the Nebraska Fire Service Training Center, Municipal Airport, northeast of the city. Fire fighters wishing to take part in the school should write to William A. Berens, Chief Fire Engineering Instructor, Harvard, Nebraska. There will also be six regional one-day fire schools held throughout the state in May, June, July, August, and two in September.

Fire Prevention Movie

A 16 mm color or black-and-white sound motion picture film has been produced by Falcon Alarm Company, Inc., 243 Broad Street, Summit, New Jersey. The company manufactures self-powered automatic fire detectors and other safety equipment. The film has a running time of 13½ minutes and is available on loan to fire departments, civic, industrial or educational groups. Generally, it summarizes eight principal causes of fires with particular attention given to fires in dwellings. Further information may be obtained by writing to Falcon Alarm Co., Inc.

NFPA Annual Meeting

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If you have special fire protection problems you can call on us for recommendations, specifications, quotations. We will follow your requests and suggestions faithfully and you will be proud to accept delivery of your new Champion Fire Apparatus secure in the confidence that the unit will perform capably and serve well to protect your employees and property.

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YOU deserve the BEST PROTECTION OBTAINABLE for your hazardous work of protecting life and property against fire. The Mackinaw Safety Coat with new yellow stripes is the answer! Highly visible stripes are rubberized as part of the material . . . not painted, glued or sewed on. There is no substitute for the superior quality, design, fabric texture and safety features you get by specifying MIDWESTERN!

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Regulation 8-comb style, or drop brim style with standard front; made of FLINT-FLEX, the rugged plastic that is light, tough, flexible and non-conducting; has the new FORMABLE HEAD BAND that can be moulded to your own particular head shape; complete protection at moderate cost. Other CAIRNS HELMETS in leather and aluminum.

Write for Catalog 350

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"Cry of a Mute"

THE *New York Times* recently featured a number of interesting stories about fire incidents. One of the most impressive appeared in the Sunday, January 15, issue and concerned a deaf-mute mother of three small children all of whom were saved during a fire in a three-story, brick apartment building in Brooklyn.

A commercial photographer, named Marino and his wife were driving by the building shortly past noon. Mrs. Marino once had worked in a factory and through the years had never forgotten one thing — the peculiar, strangled sound of a co-worker who could neither hear nor speak but attempted to make herself heard during an emergency.

Mrs. Marino heard a similar sound as she and her husband drove past the Brooklyn building. When her husband stopped the car at her insistence, they both observed smoke issuing from a top-floor window. Mr. Marino first rushed into the building but found access to the top floor blocked by flames. He ran down the stairs and came outside just as the woman in the burning flat sought to throw an infant over a protective grate on the bedroom window. Marino looked up just in time to catch the one-year-old child, who suffered only a cut on the leg.

The distraught, deaf-mute mother then tried to throw down a three-year-old son but he, terrified, grasped the bars of the protective grate. By this time a police radio patrol car arrived, and two patrolmen ran into the building and effected the rescue of the mother and the other two children.

Afterwards, in sign language, the mother explained that her husband was away from the apartment when the fire started. She had interrupted her dressing of the children to light the kerosene stove. There was a trickle of fuel leading to a puddle at the base where the floor sloped slightly. The fuel ignited causing the mother to retreat to a bedroom with the three children.

It is possible that the fire would have contributed to the loss of lives had it not been for the remarkable coincidences of Mrs. Marino recognizing the distress cry of a mute, and her husband's fortunate action of looking upwards at the right moment.

Quaker

Here's why this PETROCHEM fire hose is on guard throughout this D-X Sunray refinery

Get acquainted with your Quaker-Quaker Pioneer distributor. You'll find him of real help—not only for your regular needs — but also in emergency situations requiring extra fast supply. Write for free brochure and name of your nearest distributor.

This hose does *more* than fight fire. It fights off deterioration by oil and chemicals, stands up to abrasion, resists weather and functions safely under high pressure. Why? Because its oil-resistant Neoprene tube is enclosed in tough, wear-defying *Du Pont Dacron* impregnated with oil-proof Neoprene . . . this provides a tough, light, flexible hose, resistant to oil, both inside and out. Actually this hose is so strong that it can take pressures up to 500 lbs. and temperatures up to 300°F. . . . and so flexible that you can actually knot it. Easy to store, too! Either coiled or folded it takes little space.

These are some of the reasons why D-X Sunray's Oklahoma refinery has this hose . . . the first made for oil and chemical industries, at all fire stations . . . and why it will pay you to consider it in your safety planning. Complete Quaker-Quaker Pioneer line includes hose for every purpose, belting, packing and moulded rubber for every use.

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when you need it with a
WIND POWER
PORTABLE ELECTRIC PLANT
Operates smoke ejectors, flood lights, pumps and radio during fire emergencies. Lives can be saved when you are equiped with Portable Electric Power. Also permanent station installations with automatic line transfer controls which automatically cuts in stand-by power during failure or disaster. Investigate now—write for full information, illustrated folders and prices.
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WITH CARRYING HANDLES
OTHER MODELS UP TO 100 KW
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Improved Industrial Fog Nozzle

No. 250

1½" size
Satin Finish

Economically Priced
Scientifically Machined

- Reduces Water Damage
- Delivers a Protective Water Curtain
- Finger Tips Operation
- Straight Stream or Wide Range of Fog

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MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

Pre-Connected Lines

A NUMBER of fire departments have requested additional information about pre-connected pumper attack lines. These lines are provided to give a faster, harder-hitting initial attack, with given fire company personnel and equipment, than is possible with booster lines, direct hydrant lines, fire to hydrant, or hydrant to fire pumper line. These last-named operations may not necessarily be completely eliminated, but they will be secondary to the initial attack with pre-connected lines.

Basic fundamentals in the development of the modern "pre-connected attack lines" are (1) to provide "a positive operation" that will end the uncertainty as to whether initial attack will be by small booster lines (which often are inadequate), by direct hydrant lines that frequently lack sufficient pressure for good fog nozzle operation, or by pumper lines which under most favorable circumstances result in some delay in getting effective streams into service. (2) Many essential connections and operations, which formerly were done on the fireground while "waiting for water," are accomplished by the "pre-connects," so that powerful pump streams can be provided almost as soon as the truck stops and the call for "water" is given. All possible make-ready is done before the fire. Lines of varied lengths are carried connected to the pump and with nozzles attached. There is no need to wait for hydrant connections to be made because attack lines are charged by water from the booster tank. (3) The operation is designed for attack with maximum volume. Formerly single fire companies frequently made initial attack with a 15 gpm booster line backed up in time by a 200 or 250 gpm 2½-inch "big line."

Evolution in Washington, D.C.

Pumper is connected to hydrant with 2½-in. supply line between pumper and pump on the hose wagon. Four 1½-in. fog nozzles are in service each with 100 psi nozzle pressure. Booster line is also available.

Length of "Pre-Connects"

Where lines are carried pre-connected, nozzles are attached instead of the more conventional method of laying and breaking the line to fit the individual length of line needed. Actually, the length of line carried will depend upon local operating conditions just as the amount of booster hose carried has varied in different departments. In Washington, D. C., the several pre-connected lines on each "wagon" vary from 100 ft. to 350 ft. and the length of lines put in service will depend upon instruction by the company officer. In Boston, Massachusetts, the three pre-connected 1½-inch lines are usually 50 ft., 200 ft., and 300 ft. in length. These lines are backed up by additional 1½-inch hose that can be connected to a spare outlet as needed.

Operating Pressures

Operating pump pressures should be standardized as much as possible for average conditions. Boston operates with about 160–165 pounds at the pump supplying the pre-connected lines to give 100 pounds average nozzle pressure with close to 100 gpm flowing per 1½-inch line. Hydrant pressure usually is depended upon to charge the 3-inch feeder, but if more than one 2½-inch back-up line is run from the pump additional hydrant or pump lines will be run to supply the engine operating at the fire.

Washington, D. C., uses a 2½-inch line from the pumper at the hydrant to the "wagon" pump at the fire. Normally, the pump at the hydrant starts at about 150 pounds for routine operations, but will step the pressure up to 200 pounds if more than two pre-connected lines are run from the wagon.

Pre-connected lines are initially charged at 100 pounds to get air and kinks out of the line and to allow the pipemen to "get set." Then the pressure at the wagon is stepped up to provide about 100 pounds at the nozzle. At this nozzle pressure the 1½-inch fog nozzles now used by the Washington, D. C., Fire Department flow about 125 gpm each.

Back-Up Lines Essential

A fundamental of good fire fighting has been to back up small hose with big lines of 2½-inch or larger hose. This is part of the pre-connected line technique. The supply lines, whether direct from the hydrant, or from another pump at the hydrant, must be adequate to supply back-up hose as well as the pre-connected lines. Some departments carry a 2½-inch nozzle already attached to back-up lines. In Boston this nozzle is attached by a double male coupling to hose which is loaded for hydrant to fire lay. One pumper outlet has a double female connection for the back-up lines. Thus the pipe is run to the point of operation and the man at the pump merely breaks the line and makes a single connection to make the big line ready for service. Pressure for back-up lines may be controlled at the pump, or as in Boston, by use of pressure controlling nozzles which are supplied at standard pump pressure also used for the small lines.

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"Forcible Entry" — Revised

THE Fire Protection Department of Oklahoma A & M College has published the third edition "Forcible Entry, Rope and First Aid Extinguishment Practices — Unit I." This revised, 1955 edition is 8½ by 11 inches in size and contains 60 pages. It has a number of new and helpful illustrations and text on fundamental building construction, use of hand and power tools for forcible entry, care, handling, splicing and use of rope, and use of first aid extinguishing devices including soda acid, pressurized water extinguishers, foam extinguishers, carbon dioxide, dry chemical, and vaporizing liquid extinguishers.

Copies of the 1955 edition are priced at $1.00 each and may be obtained by writing to the Fire Protection Department, Campus Fire Station, Oklahoma A & M College, Stillwater, Oklahoma.

New Members in NFPA

FIRE schools, fire departments and other organizations can obtain some useful lists of NFPA publications at no charge. Recently a special list of such publications was prepared for fire fighters. Limited quantities may be obtained free by writing to the NFPA Fire Services Department.

NFPA welcomes the fire chiefs and fire departments, listed below, who recently joined the Association.

California: Strathmore Volunteer Fire Department, Strathmore.

Canada: North West Territory; Yellowknife Fire Department, Yellowknife.

Connecticut: Chief C. B. French, Mill Plain Independent Hose Company No. 12, Inc., Mill Plain, Danbury.

Iowa: Mediapolis Volunteer Fire Department, Mediapolis.

Minnesota: Breckenridge Fire Department, Breckenridge.

Missouri: Chief William Kenagy, Hickman Mills, Missouri, Fire Protection District, Hickman Mills.

New York: Davenport Fire Department, Davenport.

North Carolina: Mooresville Fire Department, Mooresville.

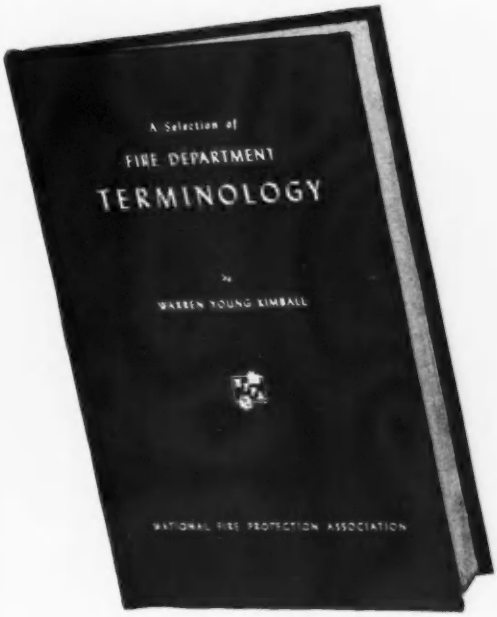
Ohio: Chief Merit Smith, Gorham-Fayette, Fire Department, Fayette.

Virginia: Chief Robert T. Resio, Falmouth Volunteer Firemen's Association, Falmouth.

Washington: Douglas County Fire Protection District, No. 5, Mansfield.

Add this book to your

FIRE STATION LIBRARY



Here's an interesting reference book for any fire station library. It describes nearly a thousand words and terms of particular significance to the fire service. It's a valuable guide for the "beginner" in a fire department, for it explains many phases of fire department operation and lists items of fire fighting, fire protection and fire control equipment.

You might provide a good service to newspapers and radio stations in your community by giving them a copy of "Fire Department Terminology." Many editors and reporters need such a reference source to describe properly the equipment and actions of a fire department on the fireground.

Order the copies you need by filling out the form on this page and mailing it to the National Fire Protection Association.

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Sample Terms

Cellar Fire. Fire involving portions of a structure below grade and considered especially dangerous and difficult to fight because of confined heat and smoke, oxygen deficiency, tendency of fire to move upward through unprotected openings, physical punishment involved in moving downward against fire, and difficulty of achieving ventilation. Self-contained breathing apparatus should be used for personnel protection at basement or cellar fires.

Dog Robber. Aide to captain on detail or investigation.

Fire Tower. A self-contained structural stair tower used as a fire escape for building occupants and as a means of access for fighting structural fires. Frequently containing a fire department standpipe riser. Also, less frequently, a fire department training tower. A fire department communications center. Occasionally, a fire department water tower truck or an aerial ladder employed as a water tower.

Phase 3, or Third Phase. Dangerous smoldering period of an interior fire when oxygen content of atmosphere has been depleted below 15% presenting likelihood of back draft or explosion of confined heated smoke and gases if fire breaks through to outside or if building is carelessly ventilated.

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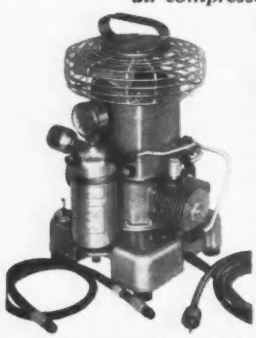

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Useful Hydrant Ring

FIRE fighter Richard J. Lattimore of the Lakewood, New York, Fire Department has a patent pending on a steel hydrant ring, designed as a useful attachment for "taking" hydrants. He got the idea for the attachment when he saw a fellow fire fighter lose control of a coupling as he was trying to hook a line to a hydrant.

Lattimore's ring is about 24 inches in diameter and is attached to the male coupling of a short piece of hose line, which in turn is attached to a full length of line. It eliminates the necessity of winding hose line around the hydrant and allows a fireman to attach the hose to the hydrant as the pumper or hose wagon is proceeding to the fire scene. The ring has been demonstrated at several firemen's conventions in the State of New York.

Correspondence Wanted

HOWARD D. HICKMAN, Marine Engineer of the Oakland fireboat, whose address is 5 Broadway, Oakland, California, wants to correspond with other fireboat marine engineers throughout the country. He suggests an informational "chain" letter for reporting experience during fire fighting operations. Readers interested may write to the above address.

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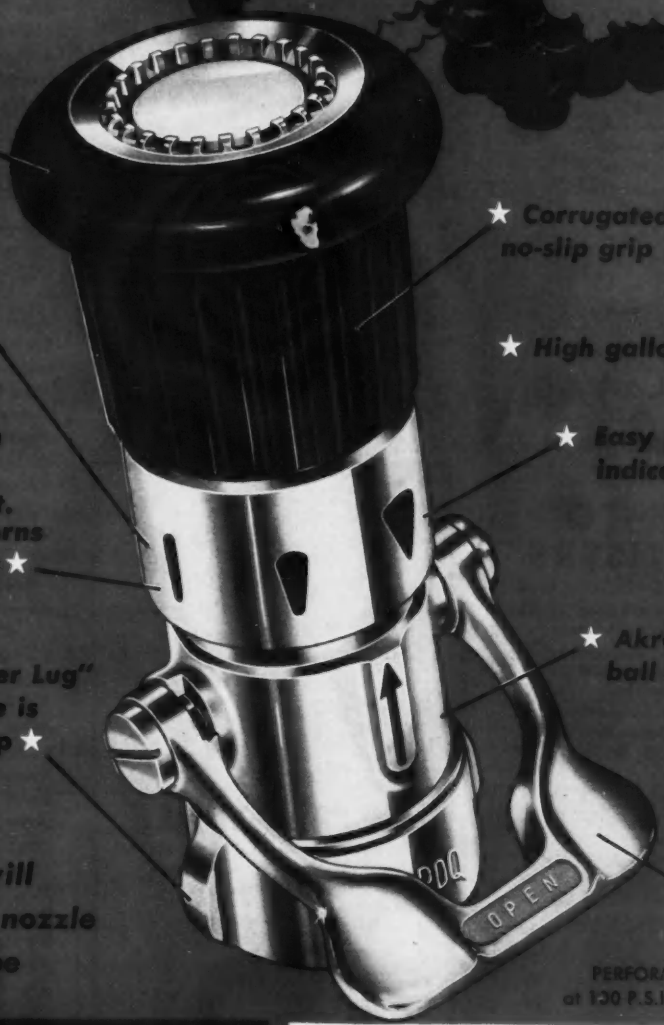

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1218	1½"	95	72.00	76.50
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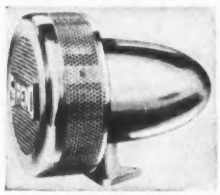

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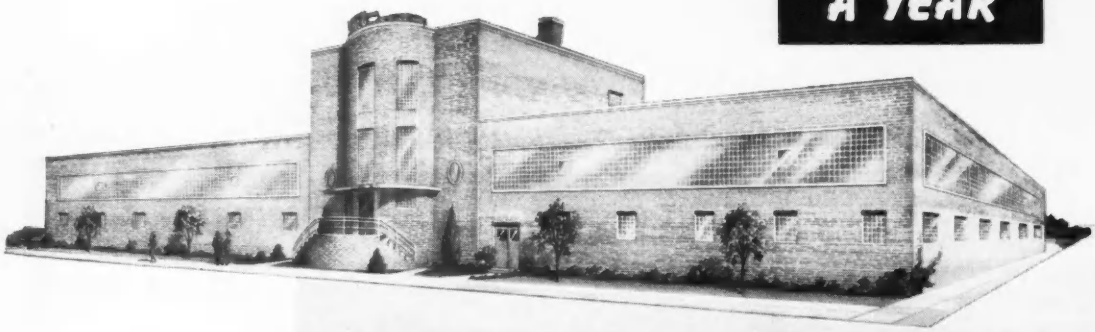

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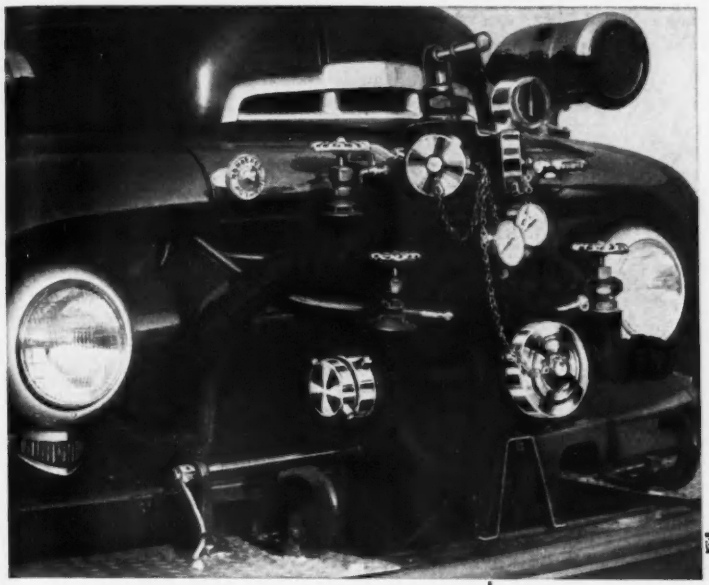

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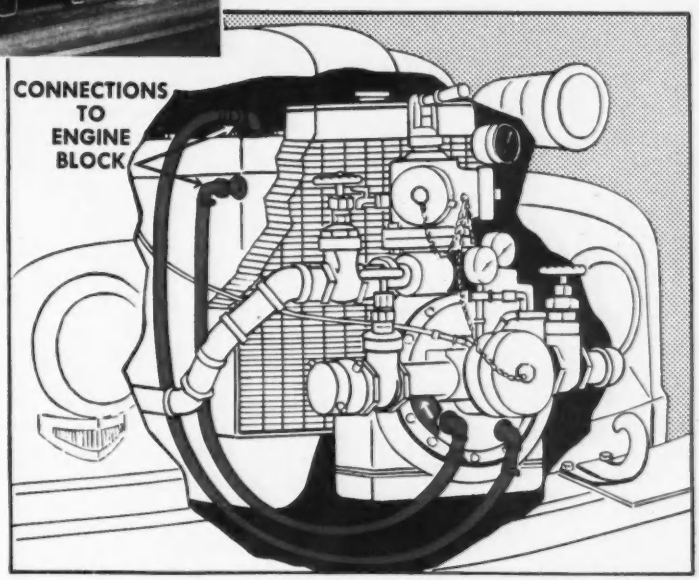

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OCCUPANCY FIRE RECORD
College Dormitories, Fraternities and Sororities

Every inspecting fire fighter needs concise, up-to-the-minute information on fire experience. A group of new occupancy fire records are published by NFPA to fill this need. These illustrated 8½- by 11-inch pamphlets analyze fires which occurred in eighteen types of occupancies.

Suppose that you were about to inspect a gasoline station. By quick reference to "Gasoline Service Stations, FR 55-9," you would find NFPA's analysis of 100 service station fires, describing special hazards that existed in 75 of these stations and the causes of fires which involved common hazards. Also included is a list of NFPA Standards which have special recommendations pertaining to safe operation of service stations.

The other Occupancy Fire Records are equally informative and will be valuable for fire department inspection work and other reference. A complete set of these new Occupancy Fire Records should be in your fire station library. They will be particularly valuable to fire officers and fire fighters taking promotional examinations.

Single copies are priced at 50c each, with discounts allowed for quantity purchases.

The eighteen fire records (FR 54-1 through FR 55-9) are available as a set for $7.00. (List price $9.00.) A set of any 10 fire records may be obtained for only $4.00. (List price $5.00.)